Contents

Chapter 7
Permitted and Registered Activities

7.1 Overview

There are several programs (federal and state) to protect water resources in North Carolina. These include programs which oversee wastewater, stormwater, land application of wastewater effluent and biosolids, wetlands and buffers, animal operations, local water supply, public water systems, coastal management, source water protection, and groundwater and drinking water protection programs (Figures 7-1 and 7-2). This section includes brief descriptions of the programs, management strategies, and resources available for protecting waters of the state. More information about each of the programs can be found on the NC Department of Environmental Quality (DEQ) website and in the Supplement Guide to Basinwide Planning (2008) as well as other state agency and county websites responsible for permitting or compliance issues.

Figure 7-1: NPDES Wastewater, NPDES Non-Discharge, and Animal Operations Permits in the White Oak River Subbasin

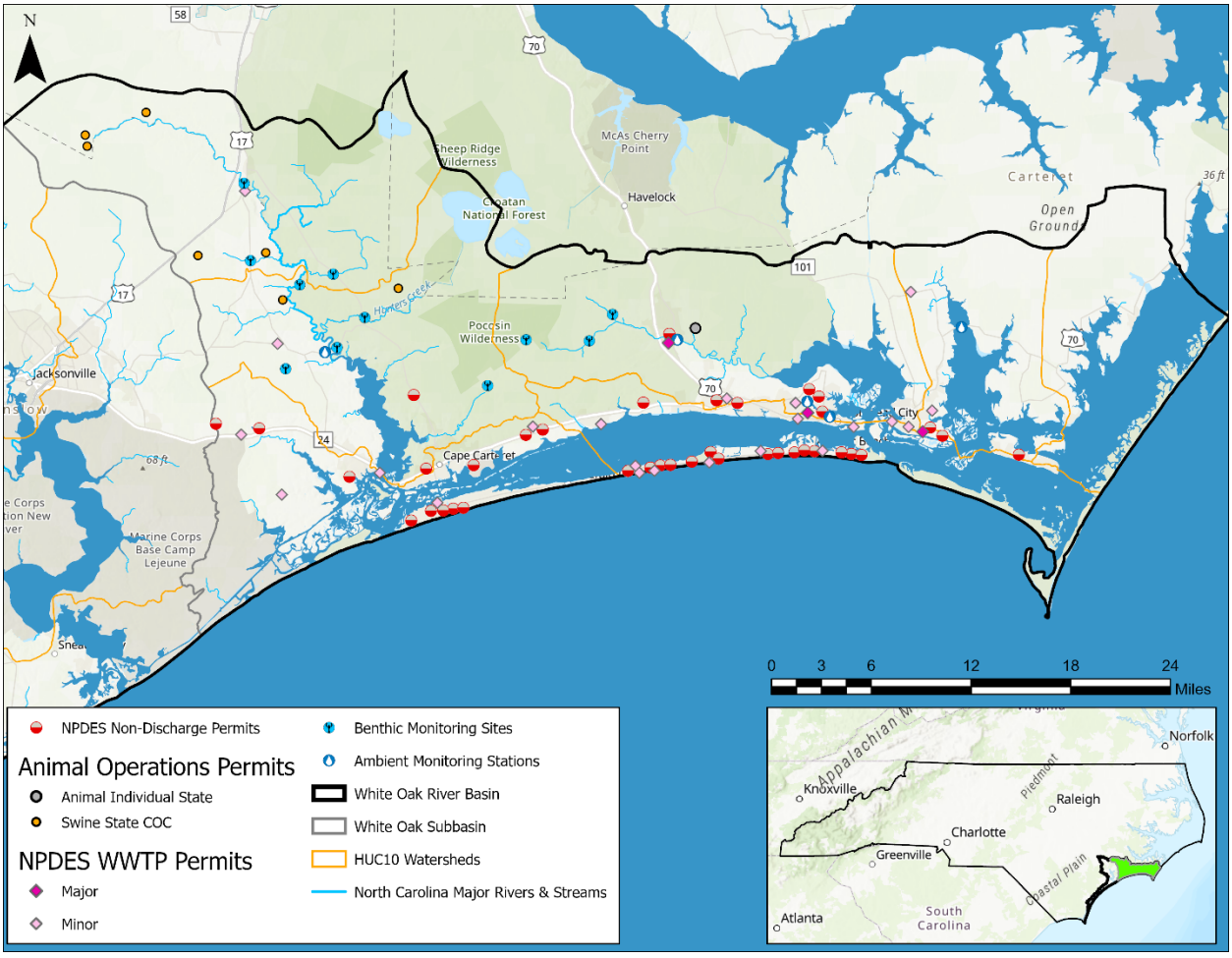
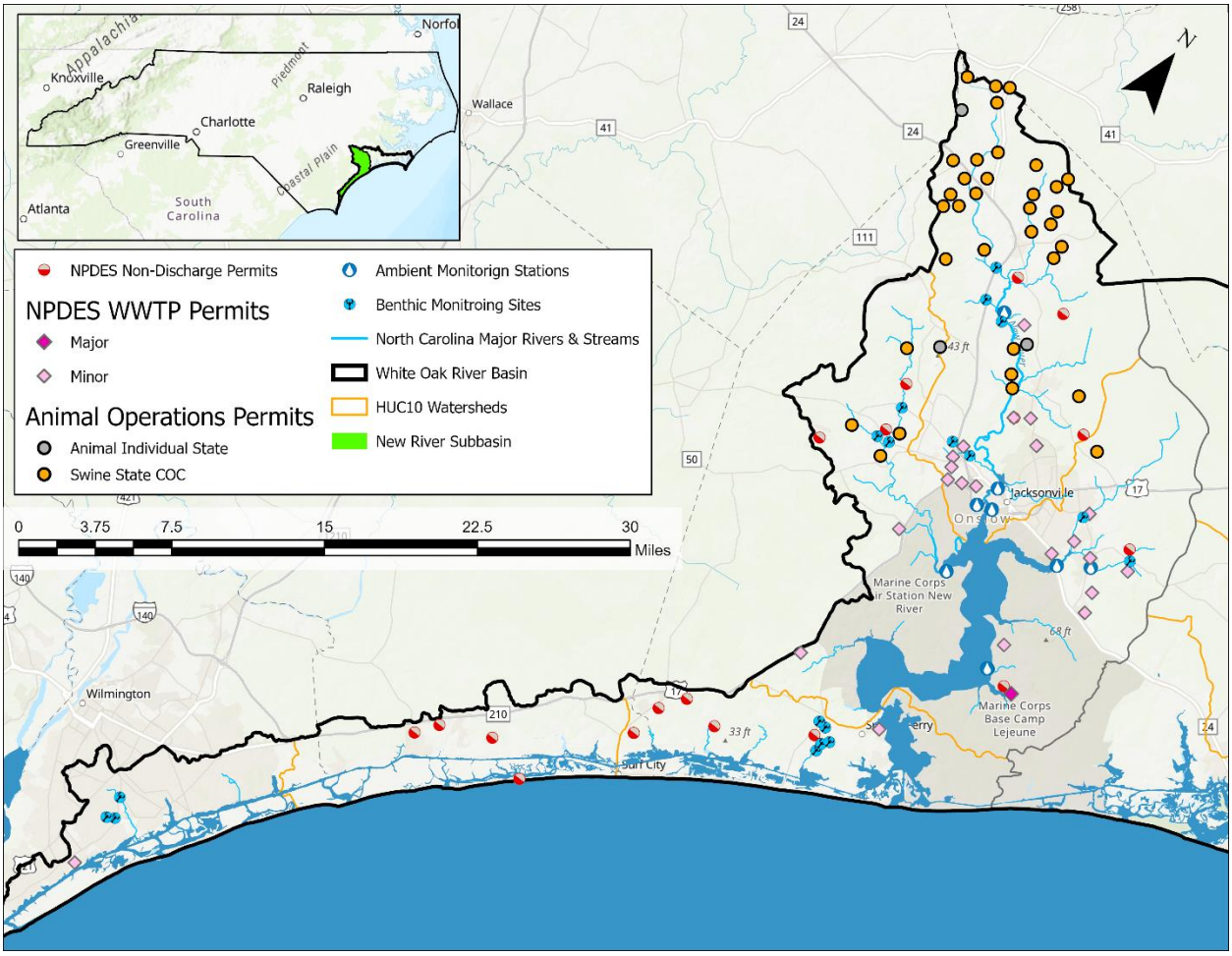


Figure 7-2: NPDES Wastewater, NPDES Non-Discharge, and Animal Operations Permits in the New River Subbasin.



7.2. Wastewater Management

7.2.1. NPDES Wastewater Discharge Permit

The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. It is authorized under the Clean Water Act (CWA). Not complying with permit limits on wastewater flow can lead to degraded water quality making surface waters unsafe for drinking, fishing, swimming, and other activities. NPDES wastewater permits are issued by the NPDES Complex Permitting and NPDES Compliance and Expedited Permitting branches within Division of Water Resources (DWR). These permits are reviewed and potentially renewed every 5 years. There are 48 NPDES discharge permits issued in the White Oak River basin. A complete list of NPDES permitted facilities can be found in Appendix VII.

As part of their NPDES permit, some facilities are required to monitor whole effluent toxicity (WET). Acute and/or chronic toxicity tests are used to determine toxicity of the discharge to sensitive aquatic species (usually the fathead minnow, *Pimephales promelas*, or the water flea, *Ceriodaphnia dubia*). Results of the test can be used to help predict the impacts of the discharge to a receiving stream. DWR's Aquatic Toxicology Branch (ATB) in the Water Sciences Section (WSS) maintains a compliance summary for all facilities required to perform WET tests and provides monthly updates of the information to regional

offices as well as the central office. A list of facilities required to perform WET tests can be found in Appendix VII.

7.2.2. Pretreatment, Emergency Response and Collections System (PERCS)

The Federal and State Pretreatment Program gives regulatory authority for EPA, states, and municipal governments to control the discharge of industrial wastewater into municipal wastewater treatment plants (WWTP) or publicly owned treatment works (POTW). The objectives of the pretreatment program are to (1) prevent pass-through, interference, or other adverse impacts to a POTW, employees, or the environment; (2) promote the beneficial reuse of biosolids; and (3) assure all categorical pretreatment standards are met. There are an estimated 620 Significant Industrial Users (SIU) who discharge industrial wastewater to over 130 POTW throughout the state of North Carolina. Pretreatment programs are managed by the DWR Pretreatment, Emergency Response and Collections Systems (PERCS).

7.2.3. Non-Discharge Permitting and Land Application of Wastewater Effluent

The Non-Discharge Branch (NDB) is responsible for the permitting of facilities that land apply residuals, reclaimed water, and wastewater effluent. Residuals, often referred to as biosolids, treated sludge, or sewage sludge, are generated during wastewater treatment, water treatment, and air pollution control measures. The program has operational and monitoring requirements similar to those of the NPDES wastewater program; however, the primary difference is that the treated effluent is not discharged to surface waters. Instead, it is applied to the land. Non-discharge wastewater disposal options include irrigation (spray or drip), high-rate infiltration, low-rate infiltration, and evaporative systems. Non-discharge residual disposal includes dedicated and non-dedicated residual disposal sites, and agricultural land for crops not consumed by humans. Residuals are also available to the public as fertilizer for home use. During the application process, steps must be taken to assure that residuals are applied at or below agronomic rates based on the soil and crop type. If the application is over agronomic rates, the residuals must be taken to a dedicated residual disposal site or landfill. There are 56 permitted non-discharge permits the White Oak River basin. A complete list of non-discharge permits can be found in Appendix VII.

It is important to note that there is a direct connection between groundwater and surface water in many places. Non-discharge systems work well when the site is conducive to infiltration. However, problems can arise when the site is a low-lying area with a high groundwater table (thereby inhibiting infiltration), or with nearby wetlands or ditches that can act as a ready conduit for runoff. Most non-discharge wastewater irrigation sites have lagoons which start the treatment process and allows the wastewater to be held until conditions are appropriate to spray. If the water table is high in an application field, water level meters are installed to prevent irrigation until there is a certain vertical separation between the land surface and the water table. Runoff is a potential concern at any irrigation site, but it can be prevented with proper hydraulic loading (water balance), buffering, and storage. All the facilities in the White Oak River basin have the potential to cause impacts to surface water or groundwater. More research needs to be conducted to better establish and understand the relationship between groundwater and surface water in the White Oak River basin. Such understanding would enable the state to make sound permitting judgments and recommendations to better protect ground and surface water quality.

7.2.6. On-Site Wastewater Treatment Systems (Septic Systems)

On-site wastewater treatment systems are the primary means for wastewater treatment and disposal for almost 50% of North Carolinians. Instead of being sent to a wastewater treatment facility, wastewater effluent from many households is treated on-site using a subsurface wastewater

treatment system, more commonly referred to as a septic system. Aging, -poorly planned and/or maintained septic systems can fail and contribute to nonpoint source pollution. Wastewater from failing septic systems can contaminate groundwater and surface water. Failing septic systems can also pose a health hazard and may be considered illegal discharges when surface water is impacted.

On-site wastewater systems discharging to subsurface in North Carolina fall under the regulatory jurisdiction of the North Carolina Department of Health and Humans Services (DHHS) under rules adopted by the Commission for Public Health (CPH). The rules for on-site wastewater systems are administered by local health departments throughout the state, under the supervision of the On-Site Water Protection (OSWP) Branch in DHHS's Division of Public Health (DPH) https://ehs.ncpublichealth.com/oswp/. The OSWP Branch is responsible for providing regulatory oversight and consultative services for sub-surface on-site wastewater and dispersal systems to local health departments, builders, developers, homeowners, system installers, well drillers, system operators, engineers, soil scientists, geologists, and environmental health consultants. The Non-Point Source (NPS) Pollution Management Program in the OSWP Branch identifies ways to reduce or remove septic system-derived potential NPS pollution through the best management practices (BMPs) and education and outreach programs to ensure an on-site system is functioning properly.

Centralized sewer systems and surface dispersal systems are permitted by the North Carolina Department of Environmental Quality (DEQ) under rules adopted by the Environmental Management Commission. This includes wastewater collection systems that discharge to surface water. A NPDES general permit is required if a wastewater system discharges less than 1,000 gallons per day (gpd) to surface waters. The general permit (NCG550000) for a single family residence allows the discharge of treated domestic wastewater to surface waters. Effluent limits must be met as part of the permit and monitoring is required on an annual basis. Additional provisions may also be included in the permit. There are no general permits issued for wastewater treatment systems in the White Oak River basin.

For all septic systems discharging to subsurface that generate domestic to high-strength effluent with a daily design flow greater than 3,000 gallons per day (gpd) or any system serving a facility classified as an industrial process wastewater generator system layout, plans and specifications must be reviewed and approved by the State. Guidance for determining the minimum design daily flow for domestic sewage is provided in administrative code (15A NCAC 18A .1949). Information about the proper installation and maintenance of septic systems can be obtained by contacting OSWP Branch or county health departments. The OSWP Branch also has a Non-Point Source (NPS) Pollution Management Program that identifies potential NPS pollution from on-site systems as well as best management practices to ensure an on-site system is functioning properly. The program also has county statistics on the number of households using septic systems.

Based on the 1990 Census (the last time sewage disposal information was collected) data, in the White Oak River basin, it was determined with the exception of Onslow County, more than 50 percent of the residents living in counties located partially or entirely in the basin were using septic systems to dispose of domestic wastewater. This watershed had the second highest septic system density (38 systems/sq. mi) surpassed by the Catawba Watershed (53 systems/sq. mi) (Pradhan, 2020). Craven County had the greatest number of septic systems at 75 percent (Figure 7-3; Table 7-1). Such small portions of New Hanover and Brunswick counties are located within the basin, that numbers from those counties were not include in the data.

In order to protect human health and maintain water quality, failing septic systems should be repaired, older systems must be updated to meet current standard, and straight pipes must be eliminated. Additional monitoring of targeted contaminants (e.g., fecal coliform, nitrate-nitrogen, phosphorus) throughout tributary watersheds will aid in identifying where straight pipes and failing septic systems are problems. County, town, and city planners need to understand the economic and human health ramifications caused by improperly functioning septic systems and plan for long-term septic system sustainability. In areas where soils may prevent individual septic systems, a collective community septic system may allow for sustainable development where a centralized sewer system is not available.

Local health departments are responsible for ensuring that septic systems are properly sited, constructed, installed, and maintained and for some sites that an adequate repair area is available. Local health departments in this watershed may also be responsible for septic systems inspection. Systems classified as Type I or Type II do not require inspection by local health departments (15A NCAC 18A .1961).

Figure 7-3: Number of Septic Systems per Land Square Mile (Image Source: https://ehs.ncpublichealth.com/library/images/npsmaps/whiteoak.jpg)

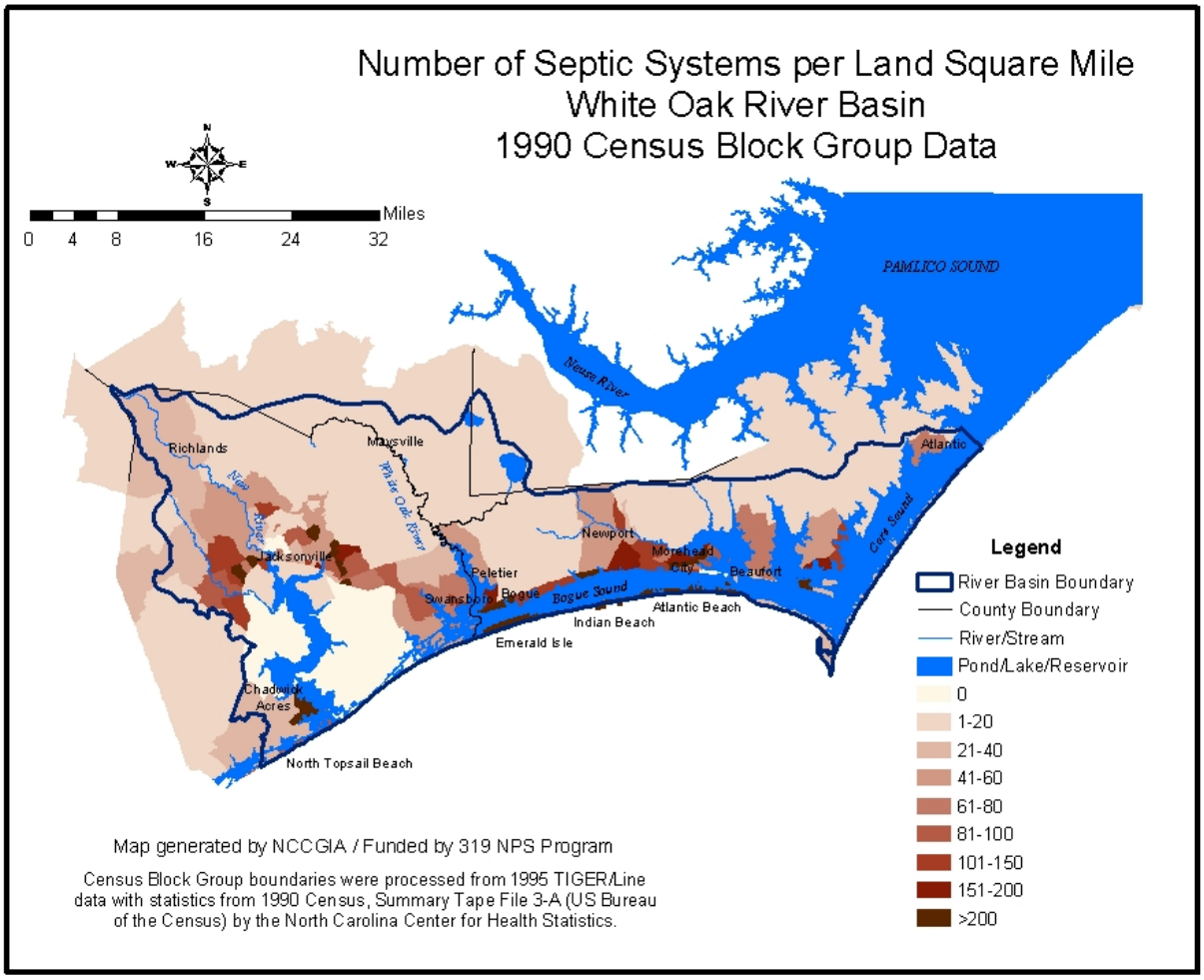


Table 7-1: Number of Septic Systems in the White Oak River Basin (based on 1990 Census data)

County	Area (mi^2)	Total Population	Sewage Disposal (Housing Units)			Sewer Usage (%)	Septic Usage (%)	Potential N (lbs./yr.)
			Sewer	Septic	Other			
Carteret	531.37	52,566	11,523	22,717	336	33.33	65.7	362,853
Craven	98.62	2,195	234	712	7	24.55	74.71	16,599
Jones	208.27	3,124	460	745	40	36.95	59.84	20,079
Onslow	705.52	148,268	25,476	19,945	452	55.54	43.48	492,703
Total	1,543.78	206,143	37,693	44,119	835			892,234
Source: https://ehs.ncpublichealth.com/oswp/docs/nps/stats/whiteoakstats.pdf								

7.3. Wetland and Buffer Permitting Programs

7.3.1 Federal Section 404 Permitting

Section 404 of the Clean Water Act (CWA) established a program to regulate the discharge of dredged or fill material into waters of the United States (US). Activities such as damming a stream channel to create a pond or placing material in a stream, wetland, or open water require a permit before dredged or fill material can be discharged into jurisdictional waters of the US. Permit applications must show that steps have been taken to avoid and minimize impacts to wetlands, streams, and other aquatic resources and in some cases, Compensatory Mitigation will be provided for unavoidable permanent losses (EPA, 2017a). Many routine farming, ranching, or silviculture activities that are part of an "on-going" farming or forestry operation are considered exempt.

The Wilmington District of the U.S. Army Corps of Engineers (ACOE) administers Section 404 in North Carolina. General Permits (GPs), also referred to as Nationwide Permits (NWPs) or Regional General Permits, are issued for impacts that will have minimal adverse effects. Individual Permits (IPs) are issued for significant impacts. In most cases, permittees are required to submit a joint Pre-Construction Notification or an Individual Application Form to the ACOE and/or DWR.

Under the ACOE, the federal compensatory mitigation requirement is generally triggered for permanent losses to 0.10 acres of wetland but varies for perennial and intermittent streams (0.02 acres or 150 linear feet depending on the NWP). The loss of medium to high quality functioning streams and wetlands are typically assigned a compensatory mitigation ratio of 2:1 by the ACOE (i.e. for every acre of wetland or foot of stream or lost, two credit units must be provided). Lower quality permanent aquatic resource losses may be assigned a lower ratio. The assigned ratio accounts for both the condition of the impacted natural resource and the time-lag associated with mitigation (Williams, A., 2018; Homewood, S., pers comm; Davis, E., pers comm).

Recent changes to the Waters of the U.S. (WOTUS) in June 2020, now called the Navigable Waters Protection Rule, have removed federal protection from wetlands that do not have a direct surface hydrologic connection to traditionally navigable waters (US EPA, 2020). Many of North Carolina's valuable wetlands such as pocosins, headwater forests, seeps, hardwood flats, pine flats and Carolina bays that do not have a surface hydrologic connection, including wetlands found in the White Oak River basin, may fall into this non-jurisdictional federal category.

7.3.2 North Carolina Section 401 Permitting and Certification

Section 401 of the CWA requires states and recognized tribes to certify any federally permitted or licensed activity that results in a discharge to waters of the United States. By issuing a Water Quality Certification (WQC), the state certifies that the project will not degrade Waters of the State or violate State water quality standards (EPA, 2010; EPA, 2017b). Mitigation is triggered at the State level for losses greater than or equal to 0.10 acre of wetland or 300 feet of perennial stream. A mitigation ratio of 1:1 is required for both wetlands and perennial streams (i.e. for every acre of wetland or feet of stream lost an equivalent amount must be replaced, NC DWR, n.d.-a).

In addition to 401 regulation through the CWA, the state has a permitting program to authorize impacts to isolated wetlands and maintains a regulatory program for riparian buffers. Riparian Buffer Authorizations or Variances are required in the Neuse River basin, Tar-Pamlico River basin, Catawba River basin, Randleman Lake watershed, Jordan Lake watershed, and Goose Creek watershed. The State has delegated authority to administer the riparian buffer protection rules to over 40 local municipalities in buffered basins.

There are two branches within DWR responsible for implementing North Carolina's water, wetlands, and riparian buffer regulatory programs: the 401 & Buffer Permitting Branch (NC DWR, n.d.-a) and Transportation Permitting Branch (NC DWR, n.d.-b). DWR's 401 & Buffer Permitting Branch, which gets its name from Section 401 of the CWA, also assists with Compliance and Enforcement issues and manages DWR's mitigation oversite programs: Stream & Wetland Mitigation Program and Nutrient Offset & Buffer Mitigation Program. NC DWR works with the ACOE to provide regulatory oversite to North Carolina wetland and stream compensatory mitigation through participation in the Interagency Review Team (IRT). The Transportation Permitting Branch works with the NC Department of Transportation (DOT) and local municipalities on transportation related projects . The branch reviews 401 certificate applications and on-site permittee-responsible wetland and stream mitigation plans associated with transportation projects. For larger more complex DOT projects, DWR, the ACOE, and other resources agencies work with DOT through the Merger Process which streamlines the permitting process (NC DOT n.d.). Both branches maintain active and expired 401 certifications on an interactive projects map. Associated project documents can be found in DWR's document's library, Laserfishe.

7.4. Division of Coastal Management

The Division of Coastal Management (DCM) protects, conserves, and manages North Carolina's coastal resources through planning, permitting, education and research. DCM carries out the NC Coastal Area Management Act (CAMA), the NC Dredge and Fill Act and the Federal Coastal Zone Management Act of 1972 in the 20 coastal CAMA Counties. DCM protects coastal North Carolina resources designated as Areas of Environmental Concern (AECs) through their permitting program with rules established by the Coastal Resource Commission. There are four categories of AECs: (1) the Estuarine and Ocean System, (2) the Ocean Hazard Areas, (3) Public Water Supplies, and (4) Fragile Natural Resource Areas.

Most of North Carolina's existing AECs fall into the first two categories. The DCM permitting program issues three types of permits to protect AECs. These include Major, Minor, and General permits. Impacts to Coastal Wetlands as defined by 15A NCAC 07H. 0205 require a CAMA permit in addition to the 401 and 404 permits. So as not to duplicate efforts, DCM generally takes the lead for the state on determining impacts and compensatory mitigation requirements for impacts to Coastal Wetlands.

7.5. Stormwater Programs

The goal of the NC Division of Energy, Minerals and Land Resources (DEMLR) stormwater programs is to prevent pollution from entering the waters of the state via stormwater runoff. The Stormwater Permitting Program develops, plans and implements statewide stormwater control policies, strategies and rules designated to protect surface waters. The program handles permitting for industrial, municipal and post-construction (development) projects and provides technical assistance to communities, engineers, industry, citizens, and local governments. Stormwater control programs include those required under NPDES, Post-Construction, and Water Supply Watersheds. DEMLR maintains an interactive web-based map to help the public determine whether development activities are subject to the post-construction permitting program or other stormwater permitting requirements. A tutorial and guidance documents are also available for interpreting the map.

North Carolina has 21 different industrial general permits that cover stormwater discharge associated with industrial activities and construction. Industries that are eligible for one of the general permits are issued a Certificate of Coverage (COC). Industries that are not eligible for a general permit are required to obtain an individual permit. A map is available online to assist the public in finding facilities or projects with stormwater permits.

Currently, there are 119 NPDES stormwater permits issued in the White Oak River basin (Table xx). Stormwater runoff is a primary carrier of nonpoint source pollution and is a particular concern in agricultural and urban areas. Manmade stormwater conveyances have been constructed throughout the basin to move water quickly off of the land, bypassing wetlands and vegetative buffers. Consequently, untreated stormwater is entering waterbodies and bringing with it nutrients, sediment, bacteria, and heavy metals. These pollutants impact water quality and can have detrimental impacts on ecological integrity, recreational use, and human health. In the in the case of shellfish growing areas, stormwater often results in closures ranging from days to week or, in some cases, permanent closure. A complete list of stormwater permits can be found in Appendix VII.

7.6. Animal Operations

DWR's Animal Feeding Operations (AFO) Program is responsible for permitting and compliance activities of animal feeding operations across the state. Animal operations are defined by General Statute 143-215.10B as feedlots having more than 250 swine, 100 confined cattle, 75 horses, 1,000 sheep or 30,000 poultry with a liquid waste management system. All permitted animal operations are required to have a Certified Animal Waste Management Plan (CAWMP). The CAWMP is developed by a Certified Technical Specialist and is incorporated into the permit.

There are many deemed permitted operations across the state. Operations considered deemed permitted have fewer animals than the state requires to obtain a permit or have a waste management system that does not require a state or federal permit. Poultry operations that use dry-litter poultry waste systems are examples of operations that are deemed permitted. Owners or operators of dry-litter poultry waste facilities are, however, required to adhere to rules set forth under 15A NCAC 02T .1303 and General Statute 143-215.10C which include minimum stream setbacks, land application rates, soil analysis, and recordkeeping. There are 45 permitted animal operations in the White Oak River basin. The majority (30) are located in the headwaters of the New River (HUC 0302030201). A complete list of animal permits can be found in Appendix VII. Based on the USDA Census of Agriculture, there may also be several poultry operations are located in the basin, but these facilities are deemed permitted. More information about

animal feeding operations can be found on the AFO program's website. More information about agriculture in the basin can be found in Chapter 1.

7.7. Water Use

7.7.1. Public Water Systems

It is the responsibility of DWR's Public Water Supply Section (PWSS) to regulate public water systems (PWS) within the state under the authority of General Statute 130A Article 10: North Carolina Drinking Water Act. Public water systems (PWS) are those that provide piped drinking water to 15 or more service connections or 25 or more people for 60 or more days per year (Table 7-2). A PWS is identified by the number of people served or number of connections and the number of days or months of the year that the population is served.

Table 7-2: Types of Public Water Supply Systems (PWS)

Public Water Supply (PWS) Type	Description
Community	Regularly serves 25 or more year-round residents or has 15 or more connections. Examples include subdivisions, mobile home parks, prisons and assisted living centers.
Non-Transient Non-Community	Serves at least 25 of the same persons 6 or more months per year. Examples include schools, daycares and industries.
Transient Non-Community	Serves 25 or more people at any given time at least 60 days per year. Examples include restaurants, gas stations, rest areas and campgrounds.

7.7.2. Source Water Assessment Program (SWAP)

Pollution prevention is recognized as the most effective approach for ensuring a reliable, long-term and safe public drinking water supply. The Safe Drinking Water Act (SDWA) amendments of 1996 required that all states establish a Source Water Assessment Program (SWAP). SWAP allows the state to systematically identify potential contaminants and delineate source water protection areas by using existing data from established federal and state environmental programs.

The primary goal of SWAP is to protect public drinking water supplies. Detailed assessments of all public drinking water intakes are available for review and can be used as a planning tool to protect public drinking water sources. An interactive map is also available which provides general information about the water source and its susceptibility rating. The susceptibility rating is based on a contaminant rating and an inherent vulnerability rating and indicates the potential for a drinking water source to become contaminated. It should be noted that the susceptibility rating is not an indicator of water quality, but rather, the potential for a water source to be impacted by the identified contaminants within the assessment area.

7.7.3. Wellhead Protection (WHP) Program

In 1986, amendments to the Safe Drinking Water Act (SWDA) established requirements for states to develop Wellhead Protection (WHP) programs. WHP programs were intended by Congress to be a key part of a national ground water protection strategy to prevent contamination of groundwater used for public drinking water supplies. In North Carolina, development of a local WHP plan is not mandatory but

is encouraged and viewed as a valuable supplement to existing ground water protection programs. North Carolina's program is intended for city and county governments and water supply operators who wish to provide added protection to their local ground water supplies. The WHP plan identifies the wellhead protection area (WHPA). A WHPA is defined as "the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonable likely to move toward and reach such water well or wellfields." Once implemented, the WHP plan reduces, but does not eliminate, the susceptibility of wells to contaminants.

7.7.4. Central Coastal Plain Capacity Use Area (CCPCUA)

In 2002, North Carolina designated fifteen counties as the Central Coastal Plain Capacity Use Area (CCPCUA) to manage water withdrawals under the authority of the Water Use Act of 1967. The CCPCUA and associated rules were approved by the Environmental Management Commission (EMC) to closely monitor and manage water withdrawals in the designated fifteen county area. Since the CCPCUA includes Carteret, Craven, Duplin, Jones, and Onslow counties, over 90 percent of the White Oak River basin is subject to rules associated with CCPCUA. CCPCUA rules require ground water users of over 100,000 gallons per day (GPD) acquire a permit and report daily water usage monthly. Surface and ground water users of over 10,000 GPD must be registered and must report water use annually. The CCPCUA program is managed by the Groundwater Management Branch (GWMB) in DWR.

7.7.5. Local Water Supply Plans (LWSP)

Under General Statute 143-355(l), local governments that provide public water service are required to prepare local water supply plans (LWSP). All community water systems that have 1,000 or more service connections or serve more than 3,000 people on a regular basis are also required to prepare a LWSP. The LWSP is an assessment of a water system's current and future water needs and its ability to meet those needs. By understanding current and future needs, local governments and community systems will be able better able to manage water supplies, plan for future growth, and prepare for system improvements. Data in the LWSP is entered by the Public Water Supply System (PWSS) and includes information about population, population projections, water supply and demand. The PWS reports water usage annually to DWR and updates the LWSP at least every five years. More information about LWSPs can be found in Chapter 8.

7.7.6. Water Withdrawal & Transfer Registration (WWATR)

General Statute 143-215.22H requires that any non-agriculture person or entity who withdraws 100,000 gallons or more of water per day from surface water or groundwater or who transfers 100,000 gallons or more of water per day from one river basin to another register the withdraw or transfer with the EMC. Any agricultural water users that withdraw or transfer 1,000,000 gallons or more of surface water or groundwater per day must also register the withdraw or transfer. The withdrawal or transfer can be registered through the Water Withdrawal & Transfer Registration (WWATR) program administered through DWR. Under administrative rule (15A NCAC 02E .0604), registrants must report monthly average water use in million gallons per day (MGD) on an annual basis. More information about WWATR can be found in Chapter 8.

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